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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,937	09/15/2000	Naoaki Kitagawa	PM 273286	1661

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EXAMINER
UHLIR, NIKOLAS J

ART UNIT	PAPER NUMBER
1773	7

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/662,937	Applicant(s) KITAGAWA ET AL.	
	Examiner Nikolas J. Uhlir	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claims 20-38 are noted to contain nominal method steps. At this time restriction has not been required between the product claims 1-19 and the method claims 20-28 because the method claims do not recite any significant manipulative steps and therefore considered as part of the product claims. If the method claims are amended to contain significant method steps they will be subject to restriction based on original presentation.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. The term "Bright" in claims 1, 3, 20 and 22 is a relative term which renders the claim indefinite. The term "bright" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear to the examiner what the applicant defines as a "bright" surface. What required level of brightness, gloss, luster, reflectance is required to render a surface "bright?"

4. The term "smooth" in claims 1, 3, 20, and 22 is a relative term which renders the claim indefinite. The term "smooth" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. In the instant

case, it is not clear to the examiner what the applicant defines as a "smooth" surface. What level of surface roughness is required to define a layer as "smooth?"

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1-3, 7-8, 10-12, 13-14, 20-22, 27-32, and 34-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Manabe et al. (US4369225).

7. Manabe et al. teaches flexible lustrously metallized resinous articles and methods for manufacturing the same (column 1, lines 8-10). These metallized resinous materials comprise a resinous substrate, a flexible polyurethane basecoat applied to the substrate, a sputtered metal film applied to the polyurethane basecoat, and a flexible polyurethane topcoat (column 3, lines 14-24). The resinous substrate is also

manufactured from polyurethane (column 3, lines 59-60). The metal layer coated on the polyurethane basecoat is typically 150-500 angstroms (.015-.05μm) thick (column 6, lines 10-11), and is selected from metals which are excellent in corrosion and weather resistance, such as copper, silver, nickel, chromium, stainless steel, and nickel/chromium alloy (column 5, lines 1-10). Manabe et al. specifically teaches a Ni/Cr alloy used for the metal layer, wherein the alloy is composed of 49% nickel and 22% chromium (column 7, lines 12-17). The flexible polyurethane topcoat is typically 5-30μm thick, and can contain coloring agents (column 5, lines 45-50, and Column 6, lines 23-30). Websters Collegiate Dictionary 10th edition 1998 defines "pigment" as "a substance that imparts black or white or a color to other materials." Thus, the examiner takes the position that a "coloring agent" meets the definition of a pigment, and therefore meets the limitations required by claims 3, 13, and 34.

8. Claims 1-3, 7-8, 10-12, 18, 20-22, 27-29, 31-33 rejected under 35 U.S.C. 102(e) as being anticipated by Mokerji (US6096426).

9. Mokerji teaches a substrate that is provided with a decorative coating system. The coating system comprises a polymeric basecoat applied to the surface of the substrate, a decorative layer of a chrome/nickel alloy applied to the polymeric basecoat, and a polyurethane or acrylic topcoat applied to the Cr/Ni layer. The polymeric basecoat serves to smooth the surface of the substrate (column 1, lines 10-20). The substrate can be comprised of any suitable material, such as plastic, metals, or metal alloys. Examples of these materials include nickel, aluminum, copper, steel, nickel alloys, polycarbonates, polyesters, and polyvinylchlorides. The substrates can be used for

parts of a vehicle, such as a wheel cover (column 1, lines 45-54). The polymeric basecoat is typically .3-1.5 mils (7.62-38.1μm) thick, and is manufactured from materials such as polycarbonate, acrylates, epoxies, and styrene polymers (column 1, lines 54-64 and column 2, lines 61-65). The Cr/Ni alloy is can be applied to the polymeric basecoat via a number of methods, including cathodic sputtering (column 3, lines 1-40). The Cr/Ni alloy layer is typically 400-5000angstroms .04-.5μm thick, and is typically comprised of 5-95% nickel, and 5-95% chromium (column 3, lines 45-56). The topcoat applied over the Ni/Cr layer is a polymeric material such as a urethane or acrylate and is typically .05-10mil. This topcoat is generally colorless, but Mokerji teaches that aesthetic benefits can be obtained by adding a color to the topcoat (1.27-250μm) thick (column 3, lines 57-67 and column 4, lines 52-64).

10. Claims 1-3, 5, 9, 11-12, 18, 20-22, 25, 30, 32 and 33 rejected under 35 U.S.C. 102(e) as being anticipated by Mokerji (US6168242).

11. For the purpose of clarity and to eliminate confusion between this Mokerji reference and the one previously stated, this Mokerji reference is referred to as Mokerji '242.

12. Mokerji '242 teaches a substrate that has been provided with a decorative coating system, wherein the coating system comprises a leveling plastic coating on a substrate, wherein the leveling coating has been further coated with a layer of a zirconium containing alloy, and a protective polyurethane coating over the zirconium alloy layer (column 1, lines 5-10). The substrate can be manufactured from many materials, including metals such as aluminum, and can be a vehicle part such as a

wheel cover (column 1, lines 50-60). The leveling coating is typically a polymer such as a polycarbonate, acrylate, or epoxy (column 1, lines 60-67). The leveling coating is typically .3-1.5mils (7.62-38.1μm) thick. The zirconium containing alloy can be an alloy of zirconium and titanium, wherein the alloy comprises 10-90% titanium and 10-90% zirconium (column 3, lines 20-25). The zirconium alloy is deposited by physical vapor deposition processes, examples of which include reactive sputtering or reactive cathodic arc deposition (column 3, lines 25-30). The zirconium alloy layer is preferably deposited to a thickness of 300-5000 angstroms (.03-.5μm) (Column 4, lines 4-13). The protective polyurethane coating is typically .05-10mils (1.27-250μm) thick (column 5, lines 62-67). The polyurethane layer is typically substantially colorless, although Mokerji '242 teaches that aesthetic benefits can be obtained through the addition of a color to the polyurethane layer (column 5, lines 1-12).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 1-2, 9, 11, 18-19, 20-21, 23, 29-30, and 32 are rejected under 35 U.S.C. 103(e) as being unpatentable over Kaumle et al. (US6068890) in view of Schwing et al. (US5656335).

15. Kaumle et al. teaches a method for gloss coating articles, more specifically articles used for vehicles and vehicle wheels (column 2, lines 17-26). One specific

method taught by Kaumle includes the following steps: 1. Providing a substrate. 2. nechanically smoothing the surface of the substrate. 3. Applying a chromate film to the smoothed surface. 4. Applying a powdered paint layer to the chromate layer. 5. Applying a corrosion inhibiting polishing basecoat to the powdered paint layer. 6. Applying a thin metal layer to the corrosion inhibiting polishing basecoat. 7. Applying a transparent wear resistant coating over the thin metal layer (column 2, lines 35-41). This method is used to coat parts made of steel and lightweight metals, such as those made from magnesium, titanium, aluminum, and their alloys. In addition, the method can be used to coat plastic parts. Examples of vehicle parts that are typically manufactured from these materials include mirror housings, radiator grilles, door latches, instrument panel parts, and wheels (column 2, lines 17-26 and column 5, lines 35-45). Kaumle et al. teaches that the corrosion inhibiting polishing basecoat is a process optimized powdered baking finish with a thickness preferably between 30-300μm (column 3, lines 25-27). The thin metal layer is preferably 100-500nm (.1-.5μm) thick, and can be manufactured systems including titanium, aluminum, and nitrogen; titanium, zirconium, and nitrogen; and zirconium, aluminum, and nitrogen; as well as various other metals and metal compositions known in the art (column 3, lines 28-40). These metal layers are preferably applied via reactive pulsed magnetron sputtering (column 4, lines 7-10). The transparent wear resistant coating is either a .5-20μm thick layer of Ormocer, or a 1-100μm thick layer of an organic resin, such as a urethane, acrylate, or epoxy resin (column 3, lines 40-46). In addition, the transparent wear resistant coating can comprise a pigment or paint (column 2, lines 24-26).

16. Kaumle et al. does not teach that the process optimized powdered baking finish is a resin material.

17. Schwing et al. teaches that process optimized powdered baking finishes are manufactured from resin materials, for example polyester resins (column 1, lines 57-59).

18. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to use a resin material as taught by Schwing et al. as the process optimized powdered baking finish taught by Kaumle et al.

19. One would have been motivated to make such a modification due to the teaching in Kaumle that process optimized powdered finishes are made out of resinous materials such as polyesters.

20. Claims 4 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manabe et al. as applied to claims 1-3, 7-8, 10-12, 13-14, 20-22, 27-32, and 34-35 above, and further in view of Hartline (US3847599).

21. Manabe et al. teaches all of the limitations of claims 4 and 24 as stated above, except for those limitations stated below.

22. Manabe et al. does not teach a substrate that has been coated with a layer of resin, wherein the resin layer is further coated with an austenitic stainless steel layer.

23. Hartline teaches that austenitic stainless steels possess the best corrosion resistance of all the known stainless steels (column 1, lines 4-10).

24. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to specifically use austenitic stainless steel as the stainless steel layer taught by Manabe et al.

25. One would have been motivated to make this modification due to the teaching in Manabe et al. that the metal layer should possess high corrosion resistance and can be a stainless steel, and the teaching in Hartline that austenitic stainless steels possess the best corrosion resistance of all the known stainless steels.

26. Claims 6 and 26 rejected under 35 U.S.C. 103(a) as being unpatentable over Kaumle et al. as applied to claims 1-2, 9, 11, 18-19, 20-21, 23, 29-30, and 32 above, and further in view of Jain et al. (US5296056).

27. Kaumle et al. teaches all of the limitations of claims 6 and 26 as stated above, except for those limitations listed below.

28. Kaumle et al. does not teach a substrate that has been coated with a resin layer, wherein the resin layer is further coated with a metal layer that comprises a titanium alloy containing 20-80 weight % aluminum.

29. Jain et al. teaches titanium aluminum (titanium aluminide) alloy compositions that exhibit high oxidation resistance, fracture toughness, and ductility (column 3, lines 1-4). A preffered titanium aluminide alloy that exhibits these benefits is comprised of 48 atomic (54 weight %) % Titanium, 46 atomic (29 weight %) % Aluminum, 5 atomic (11 weight %) % Niobium, and 1 atomic (5 weight %) % Tungsten (column 3, lines 26-31). In addition, the alloy may contain small levels of impurities such as nitrogen (column 6, lines 60-65).

30. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to use a titanium aluminide alloy that contains 54 weight %

Ti, 29 weight % Al, 11 weight % NB and 5 weight % W as taught by Jain et al. as the glossy metallic layer taught by Kaumle et al.

31. One would have been motivated to make this modification due to the teaching in Kaumle et al. that an alloy of titanium and aluminum could be used as the metal layer, and the teaching in Jain et al. that a titanium aluminide alloy that contains 54 weight % Ti, 29 weight % Al, 11 weight % NB and 5 weight % W exhibits high oxidation resistance, fracture toughness, and ductility.

32. Claims 15 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manabe et al. as applied to claims 1-3, 7-8, 10-12, 13-14, 20-22, 27-32, and 34-35 above, and further in view of Tsuge et al. (US5227451).

33. Manabe et al. teaches all of the limitations of claims 15 and 36 as stated above, except for those limitations stated below.

34. Manabe et al. does not teach coating a substrate with a resin layer, a metal layer, and a colored topcoat layer, wherein the colored topcoat comprises a pigment selected from carbon-based, lead chromate based, iron (II) ferrocyanide based, cobalt based, or chromium oxide based pigments.

35. Tsuge et al. teaches that inorganic materials such as red oxide, chrome yellow, titanium dioxide, zinc white, and carbon black can be added to polyurethanes as colored pigments (column 5, lines 10-26).

36. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to pigment the polyurethane topcoat taught by Manabe et al. with a inorganic colored pigment such as carbon black, as taught by Tsuge et al.

37. One would have been motivated to make such a modification due to the teaching in Tsuge et al. that Carbon black is a known pigment that is added to polyurethane for the purpose of coloring.

38. Claims 16 and 37 rejected under 35 U.S.C. 103(a) as being unpatentable over Manabe et al. as applied to claims 1-3, 7-8, 10-12, 13-14, 20-22, 27-32, and 34-35 above, and further in view of Dietz et al. (US5264032).

39. Manabe et al. teaches all of the limitations of claims 16 and 37 as stated above, except for those limitations listed below.

40. Manabe et al. does not teach a substrate that has been coated with a resin layer, wherein the resin layer is further coated with a metal layer, and the metal layer is coated with a colored resin topcoat, wherein the resin topcoat contains a pigment selected from thren-based, quinacrine-based, isoindolinone-based, or metal complex pigments.

41. Dietz et al. teaches that isoindolinone pigments can be added to high molecular weight materials such as polyurethanes for the purpose of pigmenting these compositions (Abstract).

42. Therefore it would have been obvious to one with ordinary skill in the art at the time the invention was made to use the isoindolinone-based pigment taught by Dietz et al. in the polyurethane topcoat layer taught by Manabe et al.

43. One would have been motivated to make this modification due to the teaching in Manabe et al. that the polyurethane topcoat layer can contain a colorant if desired, and the teaching in Dietz et al. that isoindolinones are additive pigments which are used to pigment polyurethanes.

44. Claims 17 and 38 rejected under 35 U.S.C. 103(a) as being unpatentable over Manabe et al. as applied to claims 1-3, 7-8, 10-12, 13-14, 20-22, 27-32, and 34-35 above, and further in view of Hirai et al. (US4367307).

45. Manabe et al. teaches all of the limitations of claims 17 and 38 as stated above, except for those limitations detailed below.

46. Manabe et al. does not teach a substrate coated with a layer of resin material, wherein the resin material is further coated with a layer of metal, the metal layer is further coated with a layer of colored resin material, and the colored resin contains a dye selected from mordant dyes, acid dyes, basic dyes, disperse dyes, edible dyes, direct dyes, or sulphur dyes.

47. Hirai et al. teaches a polyurethane composition that is formed from a polymeric diol, hydrazine, and an organic alicyclic dyamine. These polyurethanes also contain at least one dye selected from metal complex dyes, vat dyes, sulfur dyes, and acid dyes (column 2, lines 17-25). Websters Collegiate Dictionary 10th edition 1998 defines "dye" as "a soluble or insoluble coloring matter."

48. Therefore it would have been obvious to one with ordinary skill in the art to use a metal complex dye, vat dye, sulfur dye, or acid dye as taught by Hirai et al. in the polyurethane topcoat layer taught by Manabe et al.

49. One would have been motivated to make such a modification due to the teaching in Manabe et al. that colorant could be added to the polyurethane topcoat, and the teaching in Hirai et al. that metal complex dyes, vat dyes, sulfur dyes, or acid dyes are suitable materials for dyeing polyurethane.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nikolas J. Uhlir whose telephone number is 703-305-0179. The examiner can normally be reached on Mon-Fri 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on 703-308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0389.

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July 19, 2002

Paul Thibodeau
Supervisory Patent Examiner
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